WHAT IS CLAIMED IS:

1. A graphics processing system for creating an image and for generating image output data values based on the image, wherein the image output data values are adapted to a display device, and wherein the image is comprised of a plurality of floating point valued pixels having a first dynamic range and the image output data values have a second dynamic range, the system comprising:

a transfer function memory adapted to store a plurality of transfer function values, each transfer function value establishing a correspondence between a floating point valued pixel within the first dynamic range and an image output data value within the second dynamic range; and

a transfer function processing unit configured to create an image output data value for each of the plurality of floating point valued pixels in accordance with the plurality of transfer function values.

2. The system of Claim 1, wherein the transfer function processing unit creates an image output data value based on at least two of the transfer function values.

3. The system of Claim 2, wherein the transfer function processing unit creates an image output data value by interpolating at least two of the transfer function values.

4. The system of Claim 1, further comprising:

an image statistics unit configured to compute a statistical attribute from at least one image; and

a transfer function generation unit configured to generate a plurality of transfer function values in response to the statistical attribute and further configured to store the plurality of transfer function values in the transfer function memory.

5. The system of Claim 4, wherein the statistical attribute is histogram data corresponding to the relative frequencies of floating point valued pixels in the image having a value within one of a plurality of predetermined ranges.

6. The system of Claim 4, wherein the plurality of predetermined ranges is based on one or more exponent bits of a floating point valued pixel.

7. The system of Claim 4, wherein the image statistics units is configured to generate a statistical attribute from an image as the image is scanned out.

8. The system of Claim 7, wherein the transfer function values generated by the transfer function generation unit in response to a statistical attribute of a first image are applied to a second subsequent image.

9. The system of Claim 4, wherein the image statistics unit is configured to compute a statistical attribute of a type selected from the group consisting of averages, means, medians, variances, and minimums and maximums.

10. The system of Claim 4, wherein the image statistics unit is configured to compute a statistical attribute according to a user specified parameter.

11. A graphics processing system for creating an image and for generating image output data values based on the image, wherein the image output data values are adapted to a display device, wherein the image is comprised of a plurality of floating point valued pixels having a first dynamic range and the image output data values have a second dynamic range, the system comprising:

an image statistics unit configured to compute a statistical attribute from at least one image;

a transfer function generation unit configured to generate a transfer function establishing a correspondence between floating point valued pixel within the first dynamic range and an image output data value within the second dynamic range in response to the statistical attribute; and

a transfer function processing unit configured to create an image output data value for each of the plurality of floating point valued pixels in accordance with the transfer function.

12. The system of Claim 11, wherein the transfer function is a linear function of a floating point valued pixel.

13. The system of Claim 11, wherein the transfer function is a non-linear function of a floating point valued pixel.

14. The system of Claim 11, wherein the transfer function generation unit generates a transfer function in response to a user-specified parameter.

15. The system of Claim 11, wherein the transfer function generation unit generates a transfer function adapted to maximize the perception of visual detail.

16. The system of Claim 11, further comprising:

a transfer function filtering unit configured to filter the transfer function.

17. The system of Claim 16, wherein the transfer function filtering unit filters the transfer function over time.

18. The system of Claim 16, wherein the transfer function filtering unit is configured to compute a moving average of a plurality of previous transfer functions.

19. The system of Claim 16, wherein the transfer function filtering unit is configured to compute a low-pass filter of a plurality of previous transfer functions.

20. The system of Claim 16, wherein the transfer function filtering unit is configured to apply a plurality of filters to the transfer function, each filter assigned to a portion of the transfer function corresponding to a predetermined range of pixel values.

21. A method for configuring a graphics processing system adapted to create a floating point valued image having a first dynamic range and to generate from the

image a set of image output data values adapted for a display device having a second dynamic range, the method comprising:

receiving a plurality of image output parameters defining a desired property of a set of image output data values within the second dynamic range;

computing a statistical attribute of a floating point valued image;

creating a transfer function establishing a correspondence between a floating point valued pixel within the first dynamic range and an image output data value within the second dynamic range in response to the statistical attribute; and

applying the transfer function to the plurality of floating point valued pixels to create a set of image output data values having the desired property.

22. The method of Claim 21, wherein the desired property includes the average brightness of the set of image output data values.

23. The method of Claim 21, wherein the desired property includes a brightness limit of the set of image output data values.

24. The method of Claim 21, wherein the desired property includes a variance of the set of image output data values.

25. The method of Claim 21, wherein the desired property includes a brightness value associated with a specific distribution point of the plurality of floating point valued pixels.

26. The method of Claim 21, wherein the desired property includes a contrast of the set of image output data values.

27. The method of Claim 21, wherein the desired property is adapted to maximize the perception of visual detail.

28. The method of Claim 21, further comprising:

receiving a filter parameter;

creating a filter based on the filter parameter; and

prior to applying, filtering the transfer function in time using the filter.